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CLAIMS:

1. A sieve comprising:
  - a base;
  - 5 a sieve screen frame mounted on the base;
  - a sieve screen mounted in the frame;
  - a vibrator arranged to vibrate the frame relative to the base;
  - a guide member above the sieve screen for
  - 10 controlling flow of material to be sieved over the sieve screen; and
  - an excitation source arranged to vibrate the guide member so as to induce a deblinding excitation of the sieve screen.
- 15 2. A sieve in accordance with Claim 1, wherein the excitation source is attached to the guide member.
3. A sieve in accordance with either of Claim 1 or
- 20 Claim 2, wherein the sieve screen frame and sieve screen are circular.
4. A sieve in accordance with Claim 2, wherein the guide member takes the form of a spiral-like curve
- 25 having a progressively increasing radius of curvature and extending through at least 270°.
5. A sieve in accordance with either Claim 1 or Claim 2, wherein the sieve screen frame and sieve
- 30 screen are rectangular.
6. A sieve in accordance with Claim 5, wherein the guide member is a single zig-zag-shaped rod having at least one aperture above the sieve screen through

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which material to be sieved can flow.

7. A sieve in accordance with any of Claims 1 to 5,  
having a plurality of said guide members, each having  
5 a respective said excitation source.

8. A sieve in accordance with any preceding claim,  
wherein the guide member is secured to the top surface  
of the sieve screen.

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9. A sieve in accordance with any of Claims 1 to 7,  
wherein the guide member is in contact with the top  
surface of the sieve screen.

15 10. A sieve in accordance with any of Claims 1 to 7  
particularly for sieving a liquid material, wherein  
the guide member is spaced from the top surface of the  
sieve screen and the deblinding excitation is  
transmitted to the sieve screen through said liquid  
20 material.

11. A sieve comprising:  
a base;  
a circular sieve screen frame mounted on the  
25 base;  
a circular sieve screen mounted in the frame and  
having a centre;  
a vibrator arranged to vibrate the frame relative  
to the base;  
30 a resonator secured to or contacting the sieve  
screen, wherein the resonator takes the form of a  
spiral-like curve starting at or near the centre of  
the sieve screen, the curve having a progressively  
increasing radius of curvature and extending through

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at least  $270^\circ$  about said centre; and

an excitation source arranged to excite the resonator, to induce a debinding excitation of the sieve screen.

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12. A sieve in accordance with any preceding claim, wherein the excitation source comprises a pneumatic actuator.

10 13. A sieve in accordance with any of Claims 1 to 11, wherein the excitation source comprises an electrically powered actuator.

14. A sieve in accordance with any preceding claim, wherein the excitation source provides ultrasonic excitation.

15 15. A sieve comprising:  
a base;  
20 a sieve screen frame mounted on the base;  
a separator screen mounted in the frame;  
a vibrator arranged to vibrate the frame relative to the base;

a resonator secured to or contacting the separator screen, wherein the resonator comprises a rod extending between spaced ends;

25 an ultrasonic transducer at one of said spaced ends to excite the resonator rod at a resonant frequency having a predetermined wavelength along the length of the resonator rod;

30 said resonator rod having at least a portion of its length which bends smoothly in a single direction of curvature through at least  $90^\circ$ , and

the rod having a minimum radius of curvature at

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any point between said spaced ends which is greater than said predetermined wavelength.

16. A sieve in accordance with Claim 15, wherein said  
5 minimum radius of curvature is greater than 50 mm.

17. A sieve in accordance with Claim 15, wherein said predetermined wavelength is between 25 mm and 35 mm.

10 18. A sieve in accordance with any of Claims 15 to 17, wherein said rod bends in said single direction of curvature, over at least a portion thereof, by at least 180°.

15 19. A sieve in accordance with any preceding claim, wherein the sieve further comprises a support frame beneath the sieve screen.

20 20. A sieve in accordance with Claim 19, wherein said excitation source comprises a transducer, resonator, and a support device, which supports the excitation source on the support frame and also acts to minimise the excitation of said support frame.

25 21. A sieve in accordance with Claim 20, wherein an additional support device for the resonator is provided at a node and is attached to the resonator such that excitation of the support frame is minimised.

30 22. A sieve in accordance with any of Claims 15 to 21 including a plurality of said resonator rods on a single said screen, each of said plurality of resonator rods having a respective ultrasonic

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transducer at one end of the rod.

23. A sieve in accordance with any of Claims 15 to  
22, wherein the curvature of the rod varies over the  
5 length of the rod between the ends.

24. A sieve in accordance with any of Claims 1 to 14,  
wherein the excitation source is not attached to the  
guide member or resonator and has a striking surface  
10 arranged to strike the guide member or resonator when  
the excitation source is energised.

25. A sieve in accordance with any of Claims 1 to 14,  
wherein the excitation source is not attached to the  
15 guide member or resonator and has a contact surface  
arranged to apply pressure to the guide member or  
resonator to communicate vibrations to the guide  
member or resonator when the excitation source is  
energised.

20 26. A sieve in accordance with any of Claims 1 to 14  
and 24 or 26, wherein the excitation source is  
parasitic, depending on the vibration of the frame  
produced by said vibrator.

25 27. A sieve substantially as herein described with  
reference to the accompanying drawings.